Big Spring Curve Geological Investigation
Hat Creek Ranger District, Lassen National Forest
Shasta County, California
September 3, 2014

Introduction

The Hat Creek Ranger District of the Lassen National Forest is considering issuing a short-term special use permit to the California Department of Transportation (Caltrans) authorizing the drilling of four boreholes on Lassen National Forest (LNF) lands. These data are needed by Caltrans to complete the design for the re-engineering the adjacent section of CA highway 44 / 89.

The Big Spring Curve Geologic Investigation project is located on CA highway 44 / 89, approximately 3.2, miles southwest of Old Station, CA (T 32N, R 4E, S 12, northeast corner, on the *Old Station, California*, U. S. Geological Survey 7.5 minute topographic quadrangle). See attached map.

Preliminary analysis suggests this proposal may fit under a category of actions which are excluded from documentation in an environmental assessment (EA) or environmental impact statement (EIS). The category under consideration is 36 CFR 220.6(e)(8), *Short-term (1 year or less) mineral, energy, or geophysical investigations and their incidental support activities that may require cross-country travel by vehicles and equipment, construction of less than 1 mile of low standard road, or use and minor repair of existing roads.*

Purpose of and Need for Action

The purpose of this project is to issue a permit to Caltrans to drill four exploratory boreholes to sample the physical properties of the interior of a bluff above the Big Spring Curve on CA 44 / 89, southwest of Old Station, CA.

Caltrans notes that, "The Fatal + Injury accident rate is approximately three times higher than the statewide average." They estimate that re-engineering this stretch of road would reduce the number of roadway departure accidents by 50 percent.

There is a need to authorize a special use permit for drilling four exploratory boreholes to determine the physical properties of the adjacent materials. Without this information, the design for Caltran's re-engineering of this dangerous stretch of highway cannot be completed.

Proposed Action

Caltrans is seeking authorization to drill four boreholes. The locations of each of these can be seen on the attached map. The properties of each proposed hole are given in Table (1).

A vertical hole would be on the top of the bluff above the Big Spring Curve, with drilling being down into the stacked basalts. Three other holes would be drilled into the side of the bluff, just above the roadway. The drill rig would be in the westbound lane, and traffic would be controlled by a flagger.

In order to mitigate the risk of contaminating nearby water bodies, water would be used instead of drilling mud, and spoil material from the boreholes would not be left on site. Once direct samples have been taken, the holes would be decommissioned by filling them with grout.

Hole	Depth (feet)	Diameter (inches)	Angle (degrees)
Vertical 1	120 - 190	4	36 Below Horizontal
Horizontal 1	125 - 150	4	15 Above Horizontal
Horizontal 2	125 - 150	4	15 Above Horizontal
Horizontal 3	125 - 150	4	15 Above Horizontal

Table 1 – Physical properties of proposed boreholes.

In order to allow for cross country travel to the vertical drilling site from Forest Road 32N79Y, brush and stumps would be removed by a hand crew. The clearing would be less than 1,000 feet long and approximately 14 feet wide. Additionally, a 24 foot by 36 foot working area would be cleared around the drilling site. No trees would be felled as part of these activities. No road construction, blading or soil disturbance would occur.

IDFs are mitigations from resource specialists which ensure that the Proposed Action does not cause any resource damage and that there are no extraordinary circumstances present which would necessitate the preparation of an Environmental Assessment (EA) instead of a CE.

Aquatics:

- Water used for the drilling must not introduce any foreign microbial life into the Hat Creek system. This would be accomplished by either using potable water, or water which originated in Hat Creek, such as water from the Caltrans maintenance yard in Old Station, CA.

Fuels:

- Brush cleared to allow off-road access to the vertical drilling site as well as that from the clearing of the drilling area will be stacked in hand piles in the nearby landing. When it is safe to do so, they will be burned by LNF fire and fuels personnel.

Heritage:

- If cultural resources are identified during project implementation (unanticipated discovery), all work will cease immediately in that area until the situation is reviewed by

the District Archaeologist and an assessment and mitigation plan instituted to ensure protection of the site. The Forest would notify and consult with the Forest Service Pacific Southwest Regional Office, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP). The procedures of the Discoveries and Inadvertent Effects stipulation in the Programmatic Agreement (PA) would be followed.

- No heavy machinery would be used to clear shrubs and stumps.

Hydrology:

- The vertical hole will not go deeper than five feet above the existing roadway elevation. This is important for spring protection because Big Spring emerges from beneath the road bed.
- No hydrocarbons may be stored on site.
- All vehicles heavier than a common highway vehicle must carry absorbent pads and other measures for an emergency cleanup of spilled hydrocarbons.

Wildlife:

- If a bird of prey vocalizes and flies at the workers multiple times, on-site operations must cease immediately, and the behavior reported to the District Wildlife Biologist.

Decision to be Made

The decision to be made is whether to issue a special use permit to Caltrans, modify the project to address any unresolved public issues, or not authorize the permit. A decision on this proposal is anticipated in late September, 2014.